



‘সমানো মন্ত্র: সমিতি: সমানী’

UNIVERSITY OF NORTH BENGAL

BBA LL.B. Honours 3rd Semester Examination, 2022

BUSINESS MATHEMATICS

PAPER CODE: FC07

Time Allotted: 3 Hours

Full Marks: 100

*The questions are of equal value
The figures in the margin indicate full marks.*

Answer any four questions and Question No. 7 is compulsory to attempt

1. (a) A precious stone worth Rs. 15,600 is accidentally dropped and broken into three pieces, the weights of which are proportional to 2:3:5. The value of the stone of this variety varies as the cube of its weight. Calculate the loss incurred by its brokerage. 10
- (b) The difference between compound interest and simple interest on an amount of Rs. 15,000 for 2 years is Rs. 96. What is the rate of interest per annum? 10
2. (a) In how many ways 6 books out of 11 different books can be arranged in a book shelf, so that 3 books are always together? 10
- (b) In how many ways the letters of the word “CORPORATION” can be arranged, so that the vowels always come together? 10
3. (a) Let $A = \begin{bmatrix} 2 & -1 & 3 \\ 1 & 3 & 2 \end{bmatrix}$ 15+5
 $B = \begin{bmatrix} 3 & -2 & 1 \\ 2 & 4 & 3 \end{bmatrix}$
 Find, A' , $(A')'$, B' , $2A$, $(2A)'$
- (b) For the Matrix $A = \begin{bmatrix} 2 & 1 & -1 \\ 1 & 0 & 3 \end{bmatrix}$
 Show that $(A')' = A$
4. State and explain the difference between Simple interest and Compound interest with the help of an example. 20

5. (a) A lends Rs 1,500 to B and a certain Sum to C at the same time at 8% per annum. If A receives Rs. 1,400 as Simple interest from B and C after 44 years, then the sum lent to C is? 10
- (b) A sum of Rs. 2,500 amounts to Rs. 3,875 in 4 years at the rate of Simple interest. What is the rate of interest? 10
6. (a) Arun borrowed a sum for 4 years on Simple interest at 12%. The total interest paid was Rs. 360. Find the principle. 10
- (b) If the Compound interest on a certain sum for 2 years is Rs. 80.80 and the Simple interest is Rs. 80; then find out the rate of interest per annum. 10
7. Write short notes on any *four*: 5×4 = 20
- (i) Function in Calculus
 - (ii) Equated Monthly Installment (EMI)
 - (iii) Differentiation in Calculus
 - (iv) Importance of Derivatives in Economics
 - (v) Properties of Multiplication in Matrices
 - (vi) Find compound interest on Rs. 1,000 for 4 years at 5% per annum.

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